

CLAIMS

1. A portable refrigeration container including a base, a dismantlable wall assembly able to be mounted on the base to form a container volume, and a lid assembly able to cover the top of the container volume to provide an enclosed volume, the portable refrigeration container further including a cooling system able to maintain the enclosed volume in a cooled state.
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2. A portable refrigeration container according to claim 1 having integral stand alone power source allowing stand alone refrigeration for extended period.
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3. A portable refrigeration container according to claim 1 or 2 wherein the lid, or wall assembly includes a solar panel for powering the cooling system or battery.
4. A portable refrigeration container including:
15 a palletised thermally insulated base including seal mechanism forklift fork receiving cavities allowing ready transportability;
a dismantlable wall assembly for mounting on the palletised thermally insulated base and engaging with the base sealing mechanism and including a thermally insulated hinge type collapsible concertina configuration of side panels with latch mechanism
20 for defining a container volume therein;
a thermally insulated lid for covering the top of the container volume and including a seal mechanism for engaging with the wall assembly; and
an integral cooling system, for cooling the container volume, incorporated in one or more of the base, sides or lid.
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5. A portable refrigeration container according to claim 4 including a connector such as a tie strap mechanism to secure lid and base to side panels and provide improved structural integrity.
- 30 6. A portable refrigeration container according to claim 4 or 5 wherein the cooling system includes a eutectic cooling system capable of maintaining a

refrigerated space temperature for extended time without the need for any external power source.

7. A portable refrigeration container according to claim 6 wherein the eutectic
5 refrigeration system includes a eutectic plate which can be initially charged and used in location.

8. A portable refrigeration container according to claim 6 or 7 wherein the eutectic refrigeration system includes a eutectic material which can be transported in
10 flat light weight form and activated by immersion at remote site in activation liquid and charged by refrigeration means and used in location for extended time without the need for any external power source.

9. A portable refrigeration container according to claim 6, 7 or 8 wherein the
15 cooling system includes an integral power supply able to recharge the eutectic material.

10. A portable refrigeration container according to any one of claims 4 to 9 wherein the cooling system includes a powered thermodynamic refrigeration system
20 wherein a cooling side of the system is mountable in communication with the inside of the container volume and the heat dissipation side of the system is mountable in communication with the outside of the container volume.

11. A portable refrigeration container according to any one of claims 4 to 10
25 wherein the palletised thermally insulated base includes integral battery compartment for holding a battery and the integral cooling system, for cooling the container volume, is powered at least partially by the battery.

12. A portable refrigeration container according to any one of claims 4 to 11
30 having integral stand alone power source allowing refrigeration for several days.

13. A portable refrigeration container according to any one of claims 4 to 12 wherein the lid includes a solar panel for powering the cooling system or battery.

14. A portable refrigeration container according to any one of claims 4 to 13
5 including the base having a thermally insulated palletised housing with integral seal mechanism located around the upper face perimeter (channel) and designed for four way fork lift entry.

15. A portable refrigeration container according to claim 14 including the base
10 having a battery pack housing integrated within the raised feet allowing forklift access.

16. A portable refrigeration container according to any one of claims 4 to 15 including the wall assembly having hinged thermally insulated side panels with mitred
15 (45°) corners including seal mechanism in a concertina configuration which are designed to collapse flat and open to form a rectangular shaped container volume.

17. A portable refrigeration container according to any one of claims 4 to 16
wherein the lid is a thermally insulated housing with integral seal mechanism located
20 around the lower face perimeter (channel).

18. A portable refrigeration container according to any one of claims 4 to 17 having an integrated refrigeration housing located (moulded) as part of the external surface contains the heat rejection side of the refrigeration module.

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19. A portable refrigeration container according to claim 18 having a cold storage refrigeration coil mounted to the lid under face and having connectors for enabling all refrigeration cycle components to be in fluid communication with each other.

30 20. A portable refrigeration container according to claim 19 having the refrigeration container powered off any suitable power source, such as mains power 240VAC 50Hz or 115VAC 60Hz.

21. A portable refrigeration container according to any one of claims 4 to 20 having a stackable single pallet footprint of the collapsible stand-alone refrigeration container that maximises conventional rail/road transportation dimensions, such as
5 two abreast (maximum width) stacked two high (maximum height).
22. A portable refrigeration container according to any one of claims 4 to 21 having super thermal insulation wall assembly construction such as vacuum insulation panels.
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23. A collapsible refrigerated display case assembly including a base, a plurality of dismantlable walled assemblies able to be mounted on the base to form a refrigerated container volume wherein the base is a universal base refrigeration module which can be easily assembled or disassembled with one of the plurality of
15 walled assemblies to form different configurations.
24. A collapsible refrigerated display case assembly according to claim 23 wherein the plurality of walled assemblies includes forming either a front load or top load display case as required and is capable of maintaining a refrigerated space
20 temperature.
25. A collapsible refrigerated display case assembly according to claim 24 wherein in a top load form comprises the universal base refrigeration module, a rectangular collapsible side panel wall assembly, a perforated panel duct for mounting
25 on the universal base refrigeration module to form the base of the refrigerated container volume and on which the wall assembly is mounted, and a lid assembly for closing the top of the refrigerated container volume.
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26. A collapsible refrigerated display case assembly according to claim 24 wherein in a front load form comprises a universal base refrigeration module, a U shaped collapsible side panel wall assembly, perforated panel duct for mounting on the universal base refrigeration module to form the base of the refrigerated container

volume and on which the wall assembly is mounted, shelving for fitting into the U shape wall assembly, and a door assembly and a lid assembly for closing the front and top of the refrigerated container volume.

- 5 27. A collapsible refrigerated display case assembly according to claim 26 wherein in the front load display case configuration the universal base refrigeration module is partitioned into two thermally insulated zones - high temperature for heat dissipation and low temperature for cooling effect - with airflow and ventilation paths and the base assembly open face is sealed by a lid having an integral seal mechanism
- 10 located around the upper face perimeter and including integrated ducts/vents for return and supply of air to the universal base refrigeration module.
- 15 28. A collapsible refrigerated display case assembly according to any one of claims 23 to 27 wherein the base houses a vapour compression refrigeration system comprising the following components, in a high temperature zone: a compressor, a condensate drain tray with coil (to contain/ evaporate water condensate and de-superheat compressor discharge vapour), a heat rejection assembly (condenser coil with fan), a filter drier, and a refrigerant control mechanism; and comprising in a low temperature zone: a heat sink assembly (evaporator coil with fan), accumulator and
- 20 temperature control and wherein in assembled form all refrigeration cycle components are in fluid communication with each other via plumbing.
- 25 29. A collapsible refrigerated display case assembly according to any one of claims 23 to 28 wherein the wall assembly includes hinged thermally insulated side panels (i.e. fabricated/moulded) with mitred (i.e. 45°) corners including seal mechanism in a concertina configuration are designed to collapse and open to form a 90° angular ('U') shape.
- 30 30. A collapsible refrigerated display case assembly according to claim to any one of claims 23 to 29 wherein the horizontal top and bottom end surfaces interface and seal against the refrigeration base and lid mating surfaces (channels) and the inner side walls have several parallel rails designed to support removable product display

shelving and the open face inner side wall edges each have vertical square edged rails designed to interface with the door assembly side channels

31. A collapsible refrigerated display case assembly according to claim to any one
5 claims 23 to 30 wherein a perforated panel duct is located around the discharge air vent and rear panel inner face which panel is designed to uniformly distribute refrigerated air.

32. A collapsible refrigerated display case assembly according to claim 26
10 wherein the front load door assembly frame comprises two vertical side members with 'U' channels which interface (slide into) with the side panel vertical square edged rails and top and bottom cross members (rectangular) interface with the base and lid mating surfaces (channels) and a removable hinged sealed door with insulated transparent window (single/multiple air cavity) is attached to the frame to allow for
15 product view and access.

33. A collapsible refrigerated display case assembly according to claim 32
wherein the lid is a thermally insulated housing with integral seal mechanism located around the lower face perimeter (channel).

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34. A collapsible refrigerated display case assembly according to claim 25
wherein in the top load display case configuration the universal base refrigeration module (i.e. fabricated/moulded) is partitioned into two zones (high temperature and low temperature) with airflow and ventilation paths and thermally insulated between
25 the two and the base assembly open face is sealed by a lid (i.e. fabricated/moulded) comprising an integral seal mechanism located around the upper face perimeter (channel) including integrated ducts/vents (return and supply air).

35. A collapsible refrigerated display case assembly according to claim 34
30 wherein the base assembly houses a vapour compression refrigeration system comprising the following components, in the high temperature zone: a compressor, a condensate drain tray with coil (to contain/ evaporate water condensate and de-

superheat compressor discharge vapour), a heat rejection assembly (condenser coil with fan), a filter drier, a refrigerant control mechanism and in the low temperature zone: a heat sink assembly (evaporator coil with fan), accumulator and temperature control. All refrigeration cycle components are in fluid communication with each
5 other (via plumbing).

36. A collapsible refrigerated display case assembly according to claim 35
wherein hinged thermally insulated side panels (i.e. fabricated/moulded) with mitred
(i.e. 45°) corners including seal mechanism in a concertina configuration are designed
10 to collapse and open to form a rectangular shape and the horizontal top and bottom
end surfaces interface and seal against the refrigeration base and lid mating surfaces
(channels).

37. A collapsible refrigerated display case assembly according to claim 36
15 wherein a perforated panel duct (i.e. fabricated/moulded) located around the discharge
air vent and rear panel inner face is designed to uniformly distribute refrigerated air

38. A collapsible refrigerated display case assembly according to claim 37
wherein the top load lid housing (i.e. fabricated/moulded) with integral seal
20 mechanism located around the lower face perimeter (channel) interface with the
insulated side panels and a removable hinged sealed lid (i.e. fabricated/moulded) with
insulated transparent window (single/multiple air cavity) is attached to the housing to
allow for product view and access.

25 39. A collapsible refrigerated display case assembly according to claim 38.
wherein the base refrigeration module can be powered off any suitable power source,
such as Alternating Current (AC): (i.e. 240VAC 50Hz or 115VAC 60Hz) and Direct
Current (DC): (i.e. 12 to 48VDC)

30 40. A collapsible refrigerated display case assembly according to any one of
claims 23 to 39 wherein the collapsible side panel assembly outer faces can have

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provision for advertising, such as moulded/fixed channels/grooves on outer edges as required to locate and support bill boards (i.e. printed fibreboard/plastic sheet).

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